

205.11 - Radioactive Natural Matrix Materials (powder form)

For further information on the Descriptions of Radioactive Environmental Natural Matrix Standards click link: [Descriptions of Environmental Natural Matrix Standards](#)

When an import permit for radioactive material is required of a customer outside the U.S., NIST must have a copy to complete an order and facilitate shipment.

["Radioisotope Calibration Services"](#)

["Radioactive SRM Purchasing Instructions & License Certification Form"](#)

["Radioactive SRMs General Info"](#)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	4350B	4351	4352	4353A	4354	4355	4356	4357	4358
Description	River Sediment Environmental Radioactivity Standard	Human Lung Environmental Radioactivity Standard	Human Liver Environmental Radioactivity Standard	Rocky Flats Soil Number 2	Freshwater Lake Sediment Environmental Radioactivity Standard	Peruvian Soil Powder	Ashed Bone Environmental Radioactivity Standard	Ocean Sediment Powder	Ocean Shellfish Radionuclide Standard
Unit Size	(85 g)	(45 g)	(45 g)	(75 g)	(25 g)	(75 g)	(15 g)	(85 g)	(150 g)

Massic Activity (mBq/g)

NRC License or Equivalent Required*	--	--	--	X	--	--	--	X	--
Ref. Date	9-Sep-81	1200 EST 1-Oct-82	1-Jun-82	1-Apr-98	14-Feb-86	1-June-82	1200 EST 31-Dec-95	16-Feb-94	16 Feb 98
Americium-241 (²⁴¹ Am)	0.15		0.15		1.1	0.004			0.101
Cesium-137 (¹³⁷ Cs)	29.0			21.6	59.2	0.33		12.7	0.254
Cobalt-60 (⁶⁰ Co)	4.64				320	<0.016			
Curium-243,244 (²⁴³ Cm + ²⁴⁴ Cm)							0.12		
Europium-152 (¹⁵² Eu)	30.5					<0.23			
Europium-154 (¹⁵⁴ Eu)	3.78					<0.2			
Europium-155 (¹⁵⁵ Eu)						<0.2			
Lead-210 (²¹⁰ Pb)				58.0					6.9
Plutonium-238 (²³⁸ Pu)	0.013		0.055	0.278	0.26		0.86	2.29	0.009
Plutonium-239 (²³⁹ Pu)									
Plutonium-239,240 (²³⁹ Pu + ²⁴⁰ Pu)	0.508	1.1	2.06	16.8	4.00	0.0075	1.26	10.4	0.055
Polonium-210 (²¹⁰ Po)									
Potassium-40 (⁴⁰ K)								225	160

Massic Activity (mBq/g)

Radium-226 (²²⁶ Ra)	35.8			74.9			14.5	12.7	
Radium-228 (²²⁸ Ra)								13.3	1.33
Strontium-90 (⁹⁰ Sr)				10.5	1090		42.6	4.4	
Thorium-228 (²²⁸ Th)					28.6	42.2		12.1	1.34

*If no "X", then license is not required unless the institution possesses a specific license that covers the listed radionuclide.

- Certified values are normal font
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4359

Seaweed
Radionuclide
Standard
(300 g)

--

1-Jan-02

0.933

21.0

0.00606

0.0840

0.1296

20.6

734

4.32

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Thorium-230 (²³⁰ Th)			39.7	0.52	12.0	0.413
Thorium-232 (²³² Th)	0.21	26.8	43.0	0.98	13.0	0.642
Uranium-234 (²³⁴ U)	0.100	40.4		0.64		1.56
Uranium-235 (²³⁵ U)		1.88	0.75			0.061
Uranium-238 (²³⁸ U)	0.101	39.6	17.4	0.63		1.46

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2.40
9.5
0.400
8.67

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